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Determinants of Hospital's Financial Liquidity

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Abstract

The purpose of the articles is to identify key factors that may affect the level of hospital's liquidity ratio. We've posed four research hypotheses, assuming that, the level of financial liquidity in hospitals depends on several factors (number of beds, annual income per bed, profitability ratios, debt ratio).
We've found that:

1) there is a positive relationship between debt ratio and liquidity and profitability ratio and liquidity
2) the relationship between the size of the hospital and the financial liquidity is not statistically significant.

In the study we've use statistical tools: Pearson's correlation coefficient, T-Student's test with Cohran-Cox's correction.

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Keywords: Financial liquidity; financial ratios; hospital

1. Introduction

In countries, where the public ownership dominates in health care sector, relatively little attention is paid to the issues of financial management in hospitals. Some researchers and practitioners focus on the problems of profitability. However, it should be pointed out, that the problem of profitability is studied rather in the context of the system's underfunding than the effective financial management in hospitals. Liquidity management area, or broadly speaking, working capital management, is still considered secondary.

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The media almost every day report hospitals, which are forced to cut down on patient's admissions or close wards as a result of the lack of funds for operating activities. Due to the importance of the social aspects of health care, managers of public hospitals, in case of some financial perturbation, usually expect some financial support from public owners (primarily local government) instead of implementing recovery programs. This is the result of public ownership' domination in the health care sector in Poland (Bem, 2013). This type of demeanor minimize the chance of restructuring and preserve pathologies. That's a important problem, because some studies suggest, that financially distressed hospitals have a remarkable resiliency, that allows them to continue operation, without external help (Bazzoli, Andes, 1995).

Zeller, Stanko and Cleverey (1996) have introduced six fields (characteristic) of financial health of hospitals: profitability factor, fixed-asset efficiency, capital structure, fixed-asset age, working capital efficiency, and liquidity (Watkins, 2000). That's way liquidity ratios should be judged as an important measure of the hospital's financial health (Cleverley, Harvey, 1992); (Ehreth, 1994).

Taking into consideration the complexity of the medical and financial processes taking place in hospitals, and the general constraints in the health sector (including relatively low level of funding), the question of solvency and financial liquidity should become much more often the subject of research. Liquidity ratios determine the firm's ability to meet short-term obligations, and it measure, in general, the level of coverage of current liabilities by liquid assets. It shows the firm's possibility of paying its debts. There are three static liquidity ratios, which differ in calculation (the more conservative ratios exclude some current assets as they can't be as easily converted to cash): current ratio, quick ratio, cash ratio. The optimal level of liquidity ratios reduces the possibility of bankruptcy – in case of hospital it decreases the risk of interruption of medical activity.

There is no doubt that hospitals can differ widely. Factors such as the type of ownership (public, private), the financial objectives (for-profit, not-for profit), the size (measured with many parameters), the type of hospital (e.g. surgical, general) can significantly affect performance and the financial situation.

Liquidity appears to be naturally related to other indicators of financial condition. Empirical studies showed that that more profitable hospitals paid their suppliers faster, whereas less profitable hospitals waited longer to pay their bills. Hospitals that collected revenue faster, showed higher profit margins than hospitals that have larger balances of accounts receivable outstanding (Rauscher, Wheeler, 2012), (Cleverley, 1990).

We should also remember, that profit can't constitute the main goal of hospital's activity, especially in case of public ones. The continuity and quality of care should be always put first. That's way in the case of hospitals it's more difficult, than in typical enterprises, to determine the financial goals. Business entities are generally oriented to maximizing value for owners. For public hospitals, or broadly speaking non-profit hospitals, the objectives have not usually a monetary dimension (Nowicki, 2008, p.4), and its mission and objectives should be focused on lifesaving decisions (Kachniarz, 2008, p. 92). This doesn't mean that financial goals, including keeping financial liquidity on recommended level, can be skipped. To fulfill medical functions the hospital must achieve a balance between revenue and costs, while, at the same time, obtained income, should not only cover the costs, but also the development and modernization of equipment, before it would be completely unserviceable (Rój & Sobiech, 2006). Maintaining the financial liquidity is a necessary condition to acquire those goals.

Hospitals are a specific business entity, therefore it is not possible to apply directly all the rules of the classic theory of finance management. This specific may affect the financial economy of hospitals – that's way financial ratios, including liquidity ratios for healthcare units can differ from recommended for industrial firm (Chu, Zollinger, Kelly, Saywell Jr., 1991). Moreover, the factors determining the financial condition of hospitals often depend on the quality of the management and not on processes taking place in the market (Gapenski, Vogel, Langland-Orban, 1993).

The aim of the research is to **identify the factors that may affect the current liquidity ratio for hospital** and to **measure the strength of this, expected, relationship**. We have intended to focus on public hospitals, owned by local government units. In 2012, in Poland, there were 440 general public hospitals. That was 54 % of all hospitals, both public and private (GUS, 2012, p. 232–233). Public hospitals constitute the major part of stationary service

providers[†], offering the comprehensive range of health benefits. This category covers the hospitals owned by counties and voivodeships – voivodship's hospitals are usually bigger and more specialized.

Basing on previous research and literature studies, we've posed several **hypotheses** assuming the relationship between the level of financial liquidity and several parameters characterizing the type or size of hospital. These are:
H1: the size of the hospital (measured by the number of beds or the volume of income) is positively correlated with current liquidity ratio (CR);
H2: „*intensity of health care providing*" (measured by income per one bed) is positively correlated with the current liquidity ratio (CR) to a specific level (not known) of intensity, and then the relationship is negative;
H3: the relationship between profitability ratios and current liquidity ratio (CR) is positive;
H4: the relationship between debt ratios and current liquidity ratio (CR) is negative.

The size of the hospital may be measured by several indicators. In this particular study, we have adopted two indicators characterizing size – number of beds and the amount of revenue. **The hypothesis H1** assumes that hospitals with higher number of beds, or higher revenue, should have higher financial liquidity indicators. Prędkiewicz (2010), in empirical research on companies financial liquidity in Poland, confirmed, that company size had impact on financial liquidity ratios (current, quick and cash ratio). This effect can be associated with economies of scale, which appears, when income or number of beds increase, what usually is associated with an increase in revenue. The rate of this increase may depend also on the type of procedures provided by specific hospital.

The hypothesis H2 supposes, that higher intensity of care lead to highest level of financial liquidity ratio. We have assumed, that this relationship should be true until certain, empirically estimated, level. Above this level, we have expected negative correlation. Intensity of health care ratio informs how much revenue is generated by one hospital bed, and can be measured by income per bed. Each procedure provided by hospitals is valued by the payer (in Poland – National Health Fund – NFZ). Generally, the more specialized procedures hospital performs, the more revenue per one bed it generates. The hospital, which signs the contract covering only basic services, typically has smaller income per bed. Highly specialized procedures (e.g. invasive cardiac procedures, oncologic procedures, intensive care units) generate high revenue per bed. We've expected, that it should significantly improve the financial condition, which also means the increase in the financial liquidity ratios. The very highly-specialized procedures (e.g. transplantology) generate very high revenue, however, in contrast to, for example, the cardiac procedures, the length of stay is much longer and fixed cost (staff, equipment) are higher. At the same time, the number of such procedures is significantly controlled (reduced) by the payer, due to the overall high costs for the health care system. That's preclude from more intensive, and efficient, use of highly-specialized equipment and staff.

The hypothesis H3 assumes, that there is a positive correlation between profitability ratio and current liquidity ratio. In the literature, the negative correlation between the level of profitability and liquidity is often highlighted (Eljelly, 2004); (Zainudin, 2006) (Raheman, Nasr, 2007) (Michalski, 2009). The construction of this hypothesis is so at odds with one the basic principles of the finance management, saying, that increasing liquidity reduces the profitability – when liquidity grows, part of assets do not work, and, as a result, do not bring any profits (*non-working assets*). Low level of liquidity also enforce a very aggressive policy – this excessively restrictive approach to working capital management (receivables) may discourage clients (Michalski, 2009), (Michalski, 2010). In case of polish public hospitals, investments are not usually financed using funds generated by hospitals, but with subsidy granted by the owners, usually, local government entities. The hospital which is profitable, usually collects a lot of liquid assets, in the first place – cash, because, legitimately, the possibility of short-term capital investments are very limited.

Profitability of hospital may be measured using EBITDA margin or EBIT margin. This first ratio seems to be more important, because hospitals usually pursue to obtain a positive value of EBIDTA, while EBIT is often negative – this is not sufficient to maintain a good financial condition. On the other hand, EBIT may, for the same reasons, to a greater extent, determine financial liquidity.

[†] This definition of public hospital does not cover private hospitals with major share of public body, especially local-government units.

The hypothesis H4 is linked to the existence of a relationship between the financial liquidity and debt indicators. The theory of financial management devotes lot of attention to the debt financing problems and use of financial leverage – when a company finances its development with debt, and the expected rate of return is higher than the cost of funds. Public hospitals in Poland usually finance the development (investments) not from their own resources (retained profit), and debt generally consists of short-term commitments related to operating activities, rather than investment. This specific have prompted us to pose the hypothesis that, in case of public hospitals, high debt ratios are negatively correlated with the rate of liquidity.

The research has been conducted for 67 public hospitals, owned by local-government units, covering the years 2009–2011.

We've based on statistical tools. We've used Pearson's correlation coefficient, T-Student test and T-Student's test with Cohran-Cox's correction.

2. Methods

Financial data, used in this research, have been obtained from the project "*Portraits of Hospitals – Maps of Potential*"‡, which aim was to monitor the quality of public hospitals owned by local-government units. During first stage of this project, 81 hospital reported financial information. Finally the study has been conducted using data from 67 hospitals (15% of all public hospitals in Poland), owned by local-government units. The research presented in this paper is additional, original study and have not been carried out within the framework of the project.

We have used traditional, static liquidity indicator – current ratio, described by formula: current ratio (CR) = current assets/current liabilities – the most widely used indicator of liquidity. Probably this is not the most perfect indicator used to assess the liquidity of the company – the literature review indicates, that cash conversion cycle is better indicator of financial liquidity, however, the data's structure has not allowed the use of alternative methods (Raheman, Nasr, 2007).

The dependant variable is **the current ratio (CR)** – calculated according to the formula: *Current ratio = current assets/current liabilities*

In the initial stage, on the basis of the literature study, the analysis of financial processes and expected relationships among variables, the following explanatory variables have been selected:

- Annual revenue;
- Annual income per bed;
- Number of beds;
- EBITDA margin (EBITDA/sales revenue – EBIDTA/S);
- EBIT margin (EBIT/sales revenue – EBIT/S);

In order to verify the hypotheses H1, H3 and H4 we have analyzed the Pearson's correlation coefficient, in order to measure the linear correlation between selected variables, using the data for measurable characteristic:

$$r_{xy} = \frac{\frac{1}{n} \cdot \sum_{i=1}^{n} (x_i - \bar{x}) \cdot (y_i - \bar{y})}{s_x \cdot s_y} \tag{1}$$

Pearson's correlation coefficient indicates both the direction and strength of relationship. Due to the strength, that sometimes can be questionable, its significance has been tested using the test of the significance of correlation coefficients, assuming that the hypotheses are constructed as follow:

H_0*: the correlation coefficient is statistically insignificant,*

H_1*: the correlation coefficient is statistically significant*,

for which the testing statistic is:

$$t_e = \frac{r}{\sqrt{1 - r^2}} \sqrt{n - 2} \tag{2}$$

‡ www.portretyszpitali.pl

that, assuming the validity of H_0 hypothesis, has T-Student's distribution with n-2 degrees of freedom.

An analogous procedure has been carried out in the case of the hypothesis H2, except that, in accordance with the construction of the hypothesis, the sample has been divided into groups, corresponding to the smaller and greater intensity of care, measured by income per one bed. To confirm statistically significant differences between variables we have used the test the relevance of the differences between the average values for independent groups, represented by T-Student statistics with Cochran-Cox correction:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1 - 1} + \frac{s_2^2}{n_2 - 1}}} \tag{3}$$

for which the critical value is:

$$t_\alpha = t_{\alpha, n_1 n_2} \cong \left[\frac{s_1^2}{n_1 - 1} t_{\alpha, n_1 - 1} + \frac{s_2^2}{n_2 - 1} t_{\alpha, n_2 - 1} \right] : \left(\frac{s_1^2}{n_1 - 1} + \frac{s_2^2}{n_2 - 1} \right) \tag{4}$$

3. Results

Hypothesis 1

We've found, that at significance level $\alpha < 0.05$, there is no presumption against the hypothesis H_0. The analysis of the correlation between the size of the hospital, measured with the number of beds and liquidity ratio, hasn't showed any statistically significant correlations between those variables (Table 1). That means, that **hypothesis H1** has not been proved during our research.

Table 1. The value of the correlation coefficients between measures of size (number of beds, annual income) and liquidity ratio (CR), and the p-values for statistic tests.

	Variable	R_{XY} Pearson's	t	p-value
Number of beds	*CR2009*	−0.015	−0.12	0.904
	CR2010	−0.039	−0.31	0.755
	CR2011	−0.082	−0.66	0.512
Annual income	*CR2009*	0.135	1.10	0.275
	CR2010	0.197	1.62	0.109
	CR2011	**0.253**	2.11	**0.039****

* significance level $\alpha = 0.10$.
Source: own study.

On the other hand, in the case of size measured by revenue, we have found the statistically significant positive correlations (only in 2011) between the size of the hospital and financial liquidity, when the size of hospital is measured by income. This correlation is positive of moderate strength. We can also see that the strength of the correlation has increased over time (Table 1). It can therefore be concluded, that, at present, (which was not necessarily the rule in the past years) for more hospitals it is easier to get a higher level of liquidity.

Hypothesis H2

To verify the hypothesis H2 concerning the relationship between the intensity of care and the level of financial liquidity (H2), we have analyzed the correlation coefficients between the income per bed and liquidity ratio (CR) in whole sample, and introducing the division into hospitals characterized by higher and lower intensity, with the dividing point at the level of 105 000 PLN (Table 2).

Table 2. The value of the correlation coefficients between the intensity of care and liquidity, and the p-values for statistic test.

	R_{xy} Pearson	t	p-value
All hospitals	0.424***	3.769	**0.000*** **
Hospitals with lower intensity of care (≤ 105.000 PLN per bed)	−0.343	−1.552	0.138
Hospitals with higher intensity of care (> 105.000 PLN)	0.415**	3.058	**0.004*** **

** significance level α = 0.01, ** significance level α = 0.05 *** significance level α = 0.01.
Source: own study.

We've found the significant positive correlation between intensity of care and financial liquidity for whole sample, and for hospitals of greater intensity of care. In case of hospitals of lower intensity of care, the correlation coefficient has a negative direction, but statistically insignificant. This analysis has not allowed to verify the hypothesis H2. During next step of research, we have adopted the division as follow:

- ≤ 100 000 PLN per bed – very low intensity of care;
- > 100 000 and ≤ 200 000 PLN per bed – low intensity of care;
- > 200 000 and ≤ 400 000 PLN per bed – good intensity of care;
- > 400 000 PLN per bed – high intensity of care.

On the basis of the division presented above, we've calculated the average liquidity ratio for hospitals from all the groups of the intensity of care (Table 3).

Table 3. The value of the correlation coefficients between the intensity of care and liquidity ratio (CR), and the values for statistic test.

Variable	Group	R_{xy} Pearson	t	p-value
CR2009	very low intensity of care	0.009	0.03	0.977
	low intensity of care	−0.387	−1.681	0.112
	good intensity of care	−0.211	−0.836	0.416
	high intensity of care	0.008	0.034	0.973
CR2010	very low intensity of care	0.335	1.068	0.313
	low intensity of care	−0.165	−0.688	0.501
	good intensity of care	−0.187	−0.712	0.488
	high intensity of care	−0.015	−0.066	0.948
CR2011	very low intensity of care	*−0.252*	*−1.04*	*0.314*
	low intensity of care	−0.088	−0.494	0.625
	good intensity of care	0.292	1.144	0.272
	high intensity of care	0.333	1.538	0.141

Source: own study.

Unfortunately, none of the correlation coefficient (both negative and positive) have not been statistically significant. During next step of our research, on the basis of previous calculation, we have computed the average liquidity ratios for hospitals from all the groups of the intensity of care (very low, low, good and high intensity). Simultaneously, we have assumed, that the hospitals with the intensity of care lower than 200 000 PLN should be found as a generally weaker, in terms of financial liquidity and those with intensity of care higher than 200 000 PLN, as generally better ones. According to that assumption we have split the sample into 2 subgroup:

- I group – hospitals characterized by lower intensity of care ≤ 200 000 PLN;

- II group – hospitals characterized by higher intensity of care ≥ 200 000 PLN.

Then these values were compared using of the test of significance of differences between the averages represented t-Student test with by Cohran-Cox correction (Table 4).

Table 4. The mean and the results of the test of significance of differences for average values from independent groups, in relation to liquidity for hospitals characterized by lower and higher intensity of care

	CR	Average value (I group)	Average value (II group)	t	p-value
Very low and low intensity of care	*CR2009*	1.651	1.571	0.184	0.43
Good and high intensity of care	*CR2009*	1.595	2.268	−0.982	0.17
Very low and low intensity of care	*CR2010*	1.221	1.299	−0.244	0.40
Good and high intensity of care	*CR2010*	1.724	2.265	−0.745	0.23
Very low and low intensity of care	*CR2011*	1.264	1.179	0.318	0.40
Good and high intensity of care	*CR2011*	0.928	2.786	−2.485	0.23

Source: own study.

Although in case of year 2010 all observations relating to hospitals with a higher level of intensity the situation was similar (in 2009 and 2011 quite dissimilar) – the liquidity ratios for hospitals with higher intensity of care were higher than for the weaker hospitals, this difference hasn't been statistically confirmed. In case of hospitals characterized by lower intensity of care, we also could not confirm the statistically significant differences at the level of significance $\alpha < 0.05$ (Table 4).

On the other hand, we have observed, that the relationship between the intensity of care and the current liquidity ratio in 2011 were closest to the positive verification of hypothesis H2. Therefore, the situation for this year (and 2010) has been individually, once again, analyzed. The sample has been split up in a distinct way:

- hospitals with income per bed lower than 60 000 PLN – very low intensity of care;
- hospitals with income per bed from the range of 60 000 – 105 000 PLN – low intensity of care;
- hospitals with income per bed from the range of 105 000 – 160 000 PLN – good intensity of care;
- hospitals with income per bed higher than 160 000 PLN – high intensity of care (for the year 2010 – 350 000 PLN).

The mean of liquidity ratios have been calculated for hospitals from every group (Table 5).

Table 5. Mean and the results of the test of significance of differences for 2 average values, in relation to liquidity for hospitals characterized by lower and higher intensity of care

	Variable	Average value (I group)	Average value (II group)	t	p-value
Very low and low intensity of care	*CR2011*	1.499	0.966	1.978	**0.041****
Good and high intensity of care	*CR2011*	1.281	2.621	−1.911	**0.034****
Very low and low intensity of care	*CR2010*	0.869	1.782	−2.004	**0.058***
Good and high intensity of care	*CR2010*	1.409	2.313	−1.619	**0.058***

* significance level $\alpha = 0.10$, ** significance level $\alpha = 0.05$.
Source: own study.

For every measures, in 2011, the average liquidity ratios for hospitals characterized by low intensity of care was higher than for those with a bit more intensity. Only for 2011 (CR2011) those differences were statistically significant. The reverse situation we have observed in case hospitals with high-intensity of care. The differences between those group and hospitals a bit weaker is also statistically significant. For the year 2010, at the level of significance $\alpha = 0.10$ we have accepted the assumption, that both for hospitals of lower and stronger intensity of care, the increase in intensity is accompanied by an increase in financial liquidity ratios.

Hypothesis H3

In case of hypothesis H3, assuming, that there is a positive correlation between profitability ratio and current liquidity ratio, we've found, that, at significance level $\alpha < 0.05$, we have to reject the H_0 hypothesis of lack of

significance of the correlation coefficient between profitability and liquidity (H3) – for CR in 2009 at a level of significance α = 0.10. This correlation provides a clear, or even a strong (taking on consideration the size of the sample) positive relationship between analyzed variables. Growing liquidity is accompanied by increasing profitability and vice versa. The highest correlation coefficients (with the highest level of significance) have been received for 2011. Higher correlations, and definitely at higher relevance level, have been shown for the relationship between current liquidity ratio and EBITDA margin (Table 6).

Table 6. The value of the correlation coefficients between profitability and liquidity ratio (CR), and the p-values for statistic tests.

Year	EBIT/S			EBITDA/S		
	R_{xy} Pearsona	**t**	**p-value**	**R_{xy} Pearsona**	**t**	**p-value**
2011	0.408**	3.607	**0.001**	0.638***	6.688	**0***
2010	0.346**	2.978	**0.004**	0.542***	5.197	**0***
2009	0.236*	1.96	0.054*	0.457***	4.14	**0***

* significance level α = 0.10 ** significance level α = 0.01 *** significance level α = 0.001
Source: own study.

Hypothesis H4

The hypothesis H4 supposes the existence of a relationship between the financial liquidity and debt indicators. In case of H4 hypothesis, at the significance level α < 0.05, we must reject the H_0 hypothesis of lack of significance of the correlation coefficient between debt ratio and liquidity (H4). We have shown a significant negative correlation. This correlation provides a moderate negative relationship between these variables. Increasing level of liquidity ratio shall be accompanied by a decrease in debt and vice versa. The strength of this relationship in 2011, has proved to be relatively smaller then in 2009 and 2010 (Table 7).

Table 7. The value of the correlation coefficients between debt ratio and liquidity ratio (CR), and the p-values for statistic tests.

Year	**R_{xy} Pearsona**	**t**	**p-value**
2011	−0.286*	−2.41	**0.019****
2010	−0.315**	−2.678	**0.009*****
2009	−0.356**	−3.072	**0.003*****

* significance level α = 0.1 ** significance level α = 0.05 *** significance level α = 0.01
Source: own study.

4. Conclusions

Literature study indicates, how important is maintaining liquidity ratios at a optimal level for the financial management of the hospital. It allows the smooth liquidation of current liabilities. Therefore, it is important to analyze the factors which are related to the level of liquidity ratio.

A preliminary study has suggested, that the hospital size should affect financial performance, inter alia, the measures of liquidity. This hypothesis has not been empirically proved. We haven't found, notwithstanding the analyzed year, any significant relationship between the level of liquidity and the number of beds. In the light of that, we can't talk about the effect of the scale, as a source of the financial situation of the hospital. We also found, however, that in the year 2011, the volume of income was positively correlated with the level of indicators of liquidity. This suggests the need for further research in this area.

The study has confirmed the hypothesis of a significant positive correlation between the intensity of care, measured with income per bed, and financial liquidity, which may appear (as in year 2011) above a certain level of intensity. In this case this is the level of 105 000 PLN. However, we must emphasize, that the sample has been relatively small. On the basis of a more detailed study, we can assumed that this level in 2011 is close to the level

arbitrarily adopted at the beginning of our research. Unfortunately our attempted to carry similar research out, for the year 2009, hasn't brought the confirmation of this hypothesis. This may confirm the assumption, that the way the beds are used, may have an impact on financial liquidity. However, it requires further research, because the size of the revenue per bed can be determined by various factors – the intensity of bed's use, type of procedures provided by hospital or the average length of stay.

We have also confirmed the negative correlation between liquidity and debt ratio – when the debt increases liquidity drops – liquid assets are used to repay debts. These results are generally coincident with results presented in the literature, suggesting that high liquidity indicators are important part of the overall financial health of hospitals. It also shows, that debt results mostly from current liabilities rather than long-term capital. In the case of significant use of long-term debt, relationship between liquidity and overall debt should be much weaker.

We've also found, that there is a significant positive correlation between profitability ratio and current liquidity ratio. Our research has shown, higher correlations, and definitely at higher relevance level, for the relationship indicators of liquidity and EBITDA margin. Increase in profitability translates directly to an increase in liquidity ratio, because it increases the volume of liquid assets.

We assume, that a higher level of liquidity ratios in some hospitals may result of their high profitability. The profit, generated by hospital, may be disposed of in several ways. It can be used to repay debt and, actually, in the light of previous research, profitable hospitals have a significantly lower level of debt (19 %) than unprofitable (55 %) (Prędkiewicz, 2013). Another possibility is to invest liquid assets. However, in public hospitals, investments in fixed assets are often funded by local government (subventions) or from resources (European Union), what causes that the hospitals' profit is accumulated and increases liquidity indicators. In addition, the investments are rational, if there is any possibility of increasing the revenue. It is rather problematic, due to the method of health care financing (inflexible contracts with public payer – National Health Fund). Under the polish conditions, in case of public hospitals, it is fairly unreal to take over other medical institution, using accumulated profit. This kind of decisions have usually political context. As a consequence, it may occur the situation, that the only path to reduce the overliquidity is investment in fixed assets to raise the quality of benefits without revenue growth, or to loosen the grip on the operating cost' control. Due to the good hospital's financial situation, managers may be willing to increase salaries in condition of constant pressure from the staff (doctors, nurses). This, in the future, may lead to increase in operating costs and the reduction in profitability, as well as the deterioration of the liquidity indicators. However, this assumption requires further research.

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